

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

Listing of Claims

1. (Currently Amended) A connection assembly for connecting first and second components so as to promote electrical isolation therebetween comprising first and second members adapted to be connected to said first and second components and a dielectric member situated between said first and second members, wherein each of said first and second members includes a through opening and said dielectric member is a disk-shaped member having opposing first and second flat surfaces which extend to a through opening in said disk-shaped member, said through openings of said first and second members and said dielectric member being such as to allow passage through the through opening of one of the first and second members, through the through opening of the dielectric member, and then through the through opening of the other of the first and second members, and wherein the through opening of said dielectric member is smaller than the through openings of said first and second members and wherein:

each of said first and second members has first and second opposing surfaces, an outer surface connecting the outer peripheries of said first and second opposing surfaces, and the through opening of each of said first and second members extends between the first and second surfaces of that member; said through opening of said dielectric member extends between the first and second surfaces of the dielectric member; and the first surface of said dielectric member faces the first surface of one of said first and second members and the

second surface of said dielectric member faces the first surface of the other of said first and second members;

the first surface of said dielectric member outward of the through opening of the dielectric member abuts a part of the first surface of said one of said first and second members and the second surface of the dielectric member outward of the through opening of the dielectric member abuts a part of the first surface of the other of said first and second members;

said parts of said first surfaces of said first and second members are coated with a dielectric coating;

said coating on said parts of said first surfaces of said first and second members has a surface roughness equal to or less than approximately 80 μ in is polished; and

~~the through opening of each of said first and second members is coated with a dielectric material starting at a location adjacent said first surface of that member and ending at a second location which is a preselected distance from said first location and short of said second surface of that member.~~

2. (Canceled).

3. (Previously Presented) A connection assembly in accordance with claim 1, wherein said first component is a pipe at a first electrical potential and said second component is a pipe at a second electrical potential.

4. (Canceled).

5. (Canceled).

6. (Currently Amended) A connection assembly in accordance with claim 1, wherein: each of said one and said other of said first and second members has one or more

second through openings extending from the first surface to the second surface of that member; said dielectric member includes one or more second through openings extending from the first surface to the second surface of the dielectric member; each of the second through openings in said one of said first and second members has a corresponding second through opening in other of said first and second members and the corresponding through openings in said one and said other of said first and second members align with a second through opening in said dielectric member; and said one or more second through openings in said one and said other of said first and second members and said one or more through openings in said dielectric member being adapted receive a fastening assembly for fastening said first and second members and said dielectric member together; the one or more second through openings in said one of said first and second members are situated outward of the part of the first surface of said one of the first and second members abutted by said first surface of said dielectric member and the one or more second through openings in said other of said first and second members are situated outward of the part of the first surface of said other of said first and second members abutted by the second surface of said dielectric member; the first and second surfaces of each of the one and other of said first and second members having parts extending outward of the one or more second through openings in that member to the peripheries of the first and second surfaces of that member connected by the outer surface of that member; ~~the outer extent of and~~ the dielectric member has a third surface connecting the outer peripheries of the first and second surfaces of the dielectric member, the first and second surfaces of the dielectric member having parts extending outward of the one or more through openings of the dielectric member and which extend to the third surface of the dielectric member and are of an extent that the third surface of the dielectric member extends outward

of the outer ~~extent~~ surface of the one of the first ~~member~~ and second members and outward of the outer ~~extent~~ surface of the other of the first and second member members.

7. (Canceled).

8. (Previously Presented) A connection assembly in accordance with claim 1, wherein the first surface of each of said first and second members includes a raised sealing face outward of the through opening of that member; and the first surface of said dielectric member outward of the through opening of the dielectric member abuts a part of the raised sealing face on the first surface of said one of said first and second members and the second surface of the dielectric member outward of the through opening of the dielectric member abuts a part of the raised sealing face on the first surface of the other of said first and second members.

9. (Previously Presented) A connection assembly in accordance with claim 8, wherein said parts of said first surfaces of said first and second members include said parts of said raised sealing faces of said first surfaces of said first and second members.

10. (Canceled).

11. (Canceled).

12. (Previously Presented) A connection assembly in accordance with claim 9, wherein the entire first surface of each of said first and second members is coated with a dielectric material.

13. (Original) A connection assembly in accordance with claim 12, wherein the outer surface of each of said first and second members is coated with a dielectric material.

14. (Original) A connection assembly in accordance with claim 8, wherein each of said first and second members includes a weld-neck on the second surface of that member outward of the through opening of that member.

15. (Original) A connection assembly in accordance with claim 14, wherein the second surface of each of said first and second members is coated with a dielectric material short of a part of the weld neck of that surface adjacent the through opening of that member.

16. (Previously Presented) A connection assembly in accordance with claim 15, wherein: the entire first surface of each of said first and second members is coated with a dielectric material; and the outer surface of each of said first and second members is coated with a dielectric material.

17. (Previously presented) A connection assembly in accordance with claim 16, wherein each of said first and second members is cylindrical in shape, said through openings of said first and second members are centrally disposed and circular in cross section, and the through opening of said dielectric member is centrally disposed, aligned with the through openings of said first and second members and of circular cross section less than the circular cross section of said through openings of said first and second members.

18. (Original) A connection assembly in accordance with claim 17, wherein said first and second members are each a like flange.

19. (Original) A connection assembly in accordance with claim 18, wherein each of said first and second members is an ASME slip-on flange.

20. (Previously Presented) A connection assembly in accordance with claim 18, wherein: said dielectric member comprises a mica material; and said dielectric coating comprises a multi-layer graded ceramic coating.

21. (Previously Presented) A connection assembly in accordance with claim 20, wherein said dielectric coating comprises a first layer comprising NiCrAlY, a second layer comprising a mixture of NiCrAlY and Al_2O_3 and a third layer comprising Al_2O_3 .

22. (Original) A connection assembly in accordance with claim 14, further comprising a fastening assembly for fastening said first and second members and said dielectric member together as a unit.

23. (Previously Presented) A connection assembly in accordance with claim 22, wherein parts of said fastening assembly include a dielectric material.

24. (Previously Presented) A connection assembly in accordance with claim 22, wherein: each of said first and second members has one or more second through openings extending from the first surface to the second surface of that member; said dielectric member includes one or more second through openings extending from the first surface to the second surface of the dielectric member; each of the second through openings in said first member has a corresponding second through opening in said second member and the corresponding through openings in said first and second members align with a second through opening in said dielectric member; and said fastening assembly includes one or more fastening units, each of said fastening units coupling with corresponding second through openings in the first and second members and the aligned second through opening in said dielectric member.

25. (Original) A connection assembly in accordance with claim 24, wherein each of said fastening units includes a dielectric tube extending through the corresponding second through openings in the first and second members and the aligned second through opening in said dielectric member coupling with that fastening unit.

26. (Original) A connection assembly in accordance with claim 25, wherein each of said fastening units further includes a bolt, a first dielectric washer, a second dielectric washer, and a securing member for securing said bolt.

27. (Original) A connection assembly in accordance with claim 26, wherein for each of the fastening units: the bolt passes through the dielectric tube; the first dielectric washer is located at the head end of the bolt adjacent the second surface of one of said first and second members; and the second dielectric washer is located at the threaded end of the bolt adjacent the second surface of the other of said first and second members.

28. (Original) A connection assembly in accordance with claim 27, wherein for each of the fastening units the dielectric tube protrudes into the through opening in each of said first and second dielectric washers.

29. (Original) A connection assembly in accordance with claim 28, wherein each of the fastening units further comprises: at least one metallic washer located at the head end of the bolt of that fastening unit outward of the first dielectric washer of that fastening unit; at least one metallic washer located at the threaded end of the bolt of that fastening unit outward of the second dielectric washer of that fastening unit.

30. (Previously Presented) A connection assembly in accordance with claim 28, wherein: the entire first surface of each of said first and second members is coated with a dielectric material; the outer surface of each of said first and second members is coated with a dielectric material; the second surface of each of said first and second members is coated with a dielectric material short of a part of the weld neck of that surface adjacent the through opening of that member; and said second through openings of said first and second members are coated with a dielectric material.

31. (Previously Presented) A connection assembly in accordance with claim 30, wherein each of said first and second members is cylindrical in shape, said through openings of said first and second members are centrally disposed and circular in cross section, and the through opening of said dielectric member is centrally disposed, aligned with the through openings of said first and second members and of circular cross section less than the circular cross section of said through openings of said first and second members.

32. (Original) A connection assembly in accordance with claim 31, wherein: said dielectric member comprises a mica material; and said dielectric coating comprises a multi-layer graded ceramic coating.

33. (Previously Presented) A connection assembly in accordance with claim 22, wherein said fastening assembly comprises a V-band clamp.

34. (Original) A connection assembly in accordance with claim 1, further comprising a fastening assembly for fastening said first and second members and said dielectric member together as a unit.

35. (Original) A connection assembly in accordance with claim 34 wherein said fastening assembly comprises one of a bolt assembly and a V-band clamp.

36. (Previously Presented) A connection assembly in accordance with claim 34, wherein preselected parts of said connection assembly comprise a dielectric material.

37. (Currently Amended) A fuel cell stack assembly comprising:

a fuel cell stack;

at least a first pipe connected to said fuel-cell stack;

a second pipe; and

a connection assembly for connecting said first and second pipes so as to promote electrical isolation therebetween comprising: first and second members connected to said first and second pipes and a dielectric member situated between said first and second members, wherein each of said first and second members includes a through opening and said dielectric member is a disk-shaped member having opposing first and second flat surfaces which extend to a through opening in said disk-shaped member, said through openings of said first and second members and said dielectric member being such as to allow passage through the through opening of one of the first and second members, through the through opening of the dielectric member, and then through the through opening of the other of the first and second members, and wherein the through opening of said dielectric member is smaller than the through openings of said first and second members and wherein:

each of said first and second members has first and second opposing surfaces, an outer surface connecting the outer peripheries of said first and second opposing surfaces, and the through opening of each of said first and second members extends between the first and second surfaces of that member; said through opening of said dielectric member extends between the first and second surfaces of the dielectric member; and the first surface of said dielectric member faces the first surface of one of said first and second members and the second surface of said dielectric member faces the first surface of the other of said first and second members;

the first surface of said dielectric member outward of the through opening of the dielectric member abuts a part of the first surface of said one of said first and second members and the second surface of the dielectric member outward of the through opening of the

dielectric member abuts a part of the first surface of the other of said first and second members;

said parts of said first surfaces of said first and second members are coated with a dielectric coating;

said coating on said parts of said first surfaces of said first and second members has a surface roughness equal to or less than approximately 80 μin is polished; and

~~the through opening of each of said first and second members is coated with a dielectric material starting at a location adjacent said first surface of that member and ending at a second location which is a preselected distance from said first location and short of said second surface of that member.~~

38. (Canceled).

39. (Canceled).

40. (Currently Amended) A fuel-cell stack assembly in accordance with claim 37, wherein: each of said one and said other of said first and second members has one or more second through openings extending from the first surface to the second surface of that member; said dielectric member includes one or more second through openings extending from the first surface to the second surface of the dielectric member; each of the second through openings in said one of said first and second members has a corresponding second through opening in other of said first and second members and the corresponding through openings in said one and said other of said first and second members align with a second through opening in said dielectric member; and said one or more second through openings in said one and said other of said first and second members and said one or more through openings in said dielectric member being adapted receive a fastening assembly for fastening

said first and second members and said dielectric member together; the one or more second through openings in said one of said first and second members are situated outward of the part of the first surface of said one of the first and second members abutted by said first surface of said dielectric member and the one or more second through openings in said other of said first and second members are situated outward of the part of the first surface of said other of said first and second members abutted by the second surface of said dielectric member; the first and second surfaces of each of the one and other of said first and second members having parts extending outward of the one or more second through openings in that member to the peripheries of the first and second surfaces of that member connected by the outer surface of that member; the outer extent of and the dielectric member has a third surface connecting the outer peripheries of the first and second surfaces of the dielectric member, the first and second surfaces of the dielectric member having parts extending outward of the one or more through openings of the dielectric member and which extend to the third surface of the dielectric member and are of an extent that the third surface of the dielectric member extends outward of the outer extent surface of the one of the first member and second members and outward of the outer extent surface of the other of the first and second member members.

41. (Canceled).

42. (Original) A fuel-cell stack assembly in accordance with claim 41, wherein the first surface of each of said first and second members includes a raised sealing face outward of the through opening of that member; and the first surface of said dielectric member outward of the through opening of the dielectric member abuts a part of the raised sealing face on the first surface of said one of said first and second members and the second surface of the

dielectric member outward of the through opening of the dielectric member abuts a part of the raised sealing face on the first surface of the other of said first and second members.

43. (Original) A fuel-cell stack assembly in accordance with claim 42, wherein each of said first and second members includes a weld-neck on the second surface of that member outward of the through opening of that member.

44. (Original) A fuel-cell stack assembly in accordance with claim 43, wherein said connection assembly further comprises a fastening assembly for fastening said first and second members and said dielectric member together as a unit.

45. (Previously Presented) A fuel-cell stack assembly in accordance with claim 44, wherein: each of said first and second members has one or more second through openings extending from the first surface to the second surface of that member; said dielectric member includes one or more second through openings extending from the first surface to the second surface of the dielectric member; each of the second through openings in said first member has a corresponding second through opening in said second member and the corresponding through openings in said first and second members align with a second through opening in said dielectric member; and said fastening assembly includes one or more fastening units, each of said fastening units having a dielectric tube extending through corresponding second through openings in the first and second members and the aligned second through opening in said dielectric member.

46. (Original) A fuel-cell stack assembly in accordance with claim 45, wherein:
each of said fastening units further includes a bolt, a first dielectric washer, a second dielectric washer, and a securing member for securing said bolt; and

wherein for each of the fastening units: the bolt passes through the dielectric tube; the first dielectric washer is located at the head end of the bolt adjacent the second surface of one of said first and second members; and the second dielectric washer is located at the threaded end of the bolt adjacent the second surface of the other of said first and second members.

47. (Original) A fuel-cell stack assembly in accordance with claim 46, wherein for each of the fastening units the dielectric tube protrudes into the through opening in each of said first and second dielectric washers.

48. (Original) A fuel-cell stack assembly in accordance with claim 47, wherein each of the fastening units further comprises: at least one metallic washer located at the head end of the bolt of that fastening unit outward of the first dielectric washer of that fastening unit; at least one metallic washer located at the threaded end of the bolt of that fastening unit outward of the second dielectric washer of that fastening unit.

49. (Previously Presented) A fuel-cell stack assembly in accordance with claim 46, wherein: the entire first surface of each of said first and second members is coated with a dielectric material; the outer surface of each of said first and second members is coated with a dielectric material; the second surface of each of said first and second members is coated with a dielectric material short of a part of the weld neck of that surface adjacent the through opening of that member; and said second through openings of said first and second members are coated with a dielectric material.

50. (Previously Presented) A fuel-cell stack assembly in accordance with claim 49, wherein each of said first and second members is cylindrical in shape, said through openings of said first and second members are centrally disposed and circular in cross section,

and the through opening of said dielectric member is centrally disposed, aligned with the through openings of said first and second members and of circular cross section less than the circular cross section of said through openings of said first and second members.

51. (Original) A fuel-cell stack assembly in accordance with claim 50, wherein said first and second members are each a like flange.

52. (Original) A fuel-cell stack assembly in accordance with claim 51, wherein each of said first and second members is an ASME slip-on flange.

53. (Original) A fuel-cell stack assembly in accordance with claim 48, wherein: said dielectric member comprises a mica material; and said dielectric coating comprises a multi-layer graded ceramic coating.

54. (Original) A fuel cell stack assembly in accordance with claim 53, wherein said dielectric coating comprises a first layer comprising NiCrAlY, a second layer comprising a mixture of NiCrAlY and Al_2O_3 and a third layer comprising Al_2O_3 .

55. (Canceled).

56. (Original) A fuel cell stack assembly in accordance with claim 44, wherein said fastening assembly comprises a V-band clamp.

57. (Original) A fuel cell stack assembly in accordance with claim 37, further comprising a vessel surrounding said fuel cell stack and through which said second pipe extends.

58. (Original) A fuel cell stack assembly in accordance with claim 37, further comprising a fastening assembly for fastening said first and second members and said dielectric member together as a unit.

59. (Original) A fuel cell stack assembly in accordance with claim 58, wherein said fastening assembly comprises one of a bolt assembly and a V-band clamp.

60. (Previously Presented) A fuel cell stack assembly in accordance with claim 59, wherein preslected parts of said connection assembly comprise a dielectric material.

61. (Previously Presented) A fuel-cell stack assembly in accordance with claim 43, wherein: the entire first surface of each of said first and second members is coated with a dielectric material; the outer surface of each of said first and second members is coated with a dielectric material; the second surface of each of said first and second members is coated with a dielectric material short of a part of the weld neck of that surface adjacent the through opening of that member; and said second through openings of said first and second members are coated with a dielectric material.

62. (Previously Presented) A fuel-cell stack assembly in accordance with claim 61, wherein each of said first and second members is cylindrical in shape, said through openings of said first and second members are centrally disposed and circular in cross section, and the through opening of said dielectric member is centrally disposed, aligned with the through openings of said first and second members and of circular cross section less than the circular cross section of said through openings of said first and second members.

63. (New) A connection assembly in accordance with claim 1, wherein the through opening of each of said first and second members is coated with a dielectric material starting at a location adjacent said first surface of that member and ending at a second location which is a preselected distance from said first location and short of said second surface of that member.

64. (New) A fuel-cell stack assembly in accordance with claim 37, wherein

the through opening of each of said first and second members is coated with a dielectric material starting at a location adjacent said first surface of that member and ending at a second location which is a preselected distance from said first location and short of said second surface of that member.